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EXAMINER	
MILLER, MARTIN E	
ART UNIT	**PAPER NUMBER**
2623	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/467,818	KIRIDENA ET AL.	
	Examiner	Art Unit	
	Martin Miller	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *RCE filed 7-3-03* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *11* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 28, 2003 has been entered. Accordingly, claim 1 has been amended and claim 3 has been canceled.

Information Disclosure Statement

2. The examiner has considered the IDS filed July 3, 2003 and an initialed copy is included with this office action.

Response to Arguments

3. Applicant argues on page 8, second paragraph that Ramakesavan does not teach monitoring vehicle attributes because Ramakesavan merely teaches causing a vehicle in the viewed image to flash when the system ascertains that the vehicle in the image is alongside the host vehicle. However, the examiner considers closeness to other vehicles to be a host vehicle attribute. So Ramakesavan does teach determining vehicle attributes because his display flashes when a vehicle is along side the host vehicle. Henley is relevant because of the image mosaicing features taught by the reference.

Applicant's arguments with respect to claims 1, 2, 4-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, US 6184781, and Henley, US 5657073, further in view of Akinori, JP 10175482

As per claim 1, Ramakesavan teaches:

at least two image acquisition apparatuses (digital cameras, fig. 1 elements 12a and 12b, col. 1, ll. 62-65 or fig. 5, col. 2, ll. 32-35) which are disposed upon a vehicle (front corners of vehicle, fig. 1 elements 12a and 12b) and which acquire images of the environment in which said vehicle resides (fig. 1, col. 1, ll. 19-23);

a video processing assembly (fig. 5, element 14) which is coupled to said at least two image acquisition apparatuses, which receives said acquired images, and which uses said acquired images to create ("stitching") a mosaic image of said environment (col. 2, ll. 13-15, 40-57, fig. 6, element 16);

a display (fig. 10, element 11), which is coupled to said video processing assembly (fig. 10, element 14), which is disposed within said vehicle (col. 2, ll. 31-33) ,

Although Ramakesavan does teach a display coupled to the video processor within the vehicle, which clearly will display a portion of the mosaic, Ramakesavan does not specifically teach "selectively' displaying a portion. However, Henley, who creates panoramic images (Abstract, col. 2, ll. 40-41, 43-44, 55-67), teaches:

which selectively displays at least one portion of said mosaic (col. 2, ll. 45-48); and

an image control assembly (pan-tilt-rotation-zoom controller, fig. 2A, element 22) which selects (via joy stick or other pointing device, e.g. finger, col. 4, ll. 52-53) said at least one

portion (col. 4, ll. 51-57, in particular, 54-57), thereby allowing said at least one portion of said mosaic to be selectively displayed by said display assembly (fig. 2A, element 30, col. 4, ll. 58-61).

Although Ramakesavan teaches monitoring the travel path and location of vehicle to detect when another vehicle is along side (fig. 4, col. 2, ll. 28-30), which would have been obvious to one of ordinary skill in the art to use a trigger such as a car running along side the vehicle direct the system to focus more closely to that portion of the image data displayed. Neither Ramakesavan nor Henley specifically teach causing a second portion of the mosaic to be displayed. However, Akinori teaches:

wherein said vehicle has at least one attribute (car speed, rear wheel moving locus, first sentence of solution section of Abstract) and wherein said assembly selectively monitors said at least one attribute and, in response to said monitored attribute, generates a certain signal (steering angle, last sentence of Abstract) which is effective to cause a second portion (another direction, last sentence of Abstract)of said mosaic (synthesized backward supervisory picture image) to be displayed by said display assembly

It would have been obvious to one of ordinary skill in the art to selectively point at regions of interest in mosaic image, as does Henley in combination with the image collection system of Ramakesavan and Akinori so as to better advise the operator about hazards to the side and rear of a vehicle. Also, one of ordinary skill in the art would be motivated to look at how others in the same field of endeavor would solve similar problems.

As per claim (2), Ramakesavan teaches:

wherein said at least two image acquisition apparatuses each comprise a camera (digital cameras, fig. 1 elements 12a and 12b, col. 1, ll. 62-65 or fig. 5, col. 2, ll. 32-35).

As per claim (4), Akinori teaches:

The vehicle data acquisition and display assembly of claim 1 wherein said vehicle is selectively maneuvered (see fig. 8, Solution section of Abstract) and wherein said assembly senses said maneuvering of said vehicle and, in response to said sensed maneuvering, causes a third portion (fig. 8, w1, w2, etc as vehicle turns) of said mosaic to be displayed by said display assembly.

It would have been obvious to one of ordinary skill in the art to use the triggers of Akinori (change in driving direction or steering) to substitute as the input to the controller of Henley to the image data presented by Ramakesavan to provide an accurate depiction of what is behind the vehicle at a particular moment in time.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, Henley and Akinori as applied to claim 1 above, and further in view of Kiridena et al. (hereinafter Kiridena), US 6429789.

As per claim (5), Kiridena teaches:

The vehicle acquisition and display assembly of claim 4 further comprising a voice activated control assembly (microphone, col. 6, ll. 27 -35) which selectively receives at least one voice command and which selectively causes a fourth portion (region of interest) of said mosaic to be displayed ("created" region of interest, col. 6, l. 32-35) in response to said at least one voice command.

It would have been obvious to one of ordinary skill in the art to use the voice inputs of Kiridena to further augment the image display system to allow for additional image data to be presented for the system of Ramakesavan, Henley and Akinori that already monitors vehicle closeness to objects, steering angles, and vehicle speed to control image data to also allow for the user to specify desired image views.

7. Claims 6 -9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, Henley and Akinori as applied to claim 1 above, and further in view of Hassinger, US 3915385.

Ramakesavan, Henley and Akinori do not specifically teach a way to keep the camera lenses clean. However, it would have been obvious to design such a system because the environment in which the automobile optical system is subjected to (snow and grime in the winter, if in the Northeast, rain, if in the Northwest or dust if in the Southwest) is harsh and to provide undistorted image data the camera lenses must be free of dirt, etc.

Ramakesavan clearly teaches:

at least one lens cover (a lens cover is clearly a part of any camera, Ramakesavan, figure 1, elements 12a-c);

Hassinger teaches:

a lens cleaning assembly (figure 1, element 16) which selectively cleans said at least one lens cover (figure 1, element 14).

It would have been obvious to one of ordinary skill in the art to use the lens cleaning system of Hassinger with the camera system of Ramakesavan, Henley and Akinori because Hassinger is familiar with keeping lenses on automobiles clean. Additionally such systems are

already part of an automobile system, it would have been obvious to one of ordinary skill in the art to use already designed off-the-shelf lens cleaning systems to provide unobstructed image acquisition.

As per claim 7, Hassinger teaches:

wherein said lens cleaning assembly includes a source of compressed air (fig. 1, element 26); and a valve which selectively allows compressed air to be applied to said at least one lens cover (fig. 1, element 28).

As per claim 8, Hassinger teaches:

wherein said lens cleaning assembly further includes a source of a cleansing agent (fig. 4, element 18, col. 6, ll. 23-32) which is selectively and concomitantly mixed (air and fluid are mixed in tank 18) with said applied compressed [air].

As per claim 9, Hassigner teaches:

wherein said cleaning agent is warmed before it is mixed with said applied compressed air (see figure 1, element 18, which shows cleansing agent liquid located in the engine compartment of an automobile). Hassinger by locating the cleansing agent liquid in the engine compartment insures that the liquid will be warmed by the heat energy created by the engine. It would have been obvious to one of ordinary skill in the art to use the engine heat to elevate the temperature of the cleansing agent, at least, to prevent freezing of the cleansing solution in the line.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, Henley and Akinori as applied to claim 1 above, and further in view of Wada.

As per claim (10), neither Ramakesavan nor Henley teach an audio signal, however, Wada teaches:

comprising an audio assembly which selectively generates certain audio signals (to indicate a possible collision with obstacle, col. 7, ll. 50-57) which describe said at least one portion of said mosaic.

It would have been obvious to one of ordinary skill in the art to use the audio signal as an alarm as does Wada in the vehicle camera system of Ramakesavan and Henley to prevent collisions with some object located to the rear or side of the vehicle.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, Henley, Akinori and Wada as applied to claim 10 above, and further in view of Kiridena et al. (hereinafter Kiridena), US 6429789.

As per claim (15), Kiridena teaches:

comprising a voice recognition module (col. 6, ll. 27-35) which causes said first portion of said cooperatively provided images to be displayed by said display assembly in response to a receipt of a certain voice command (col. 6, ll. 60-65).

It would have been obvious to one of ordinary skill in the art to use the triggers of Kiridena (change in driving direction or steering) to substitute as the input from the joystick controller of Henley to the image data presented by Ramakesavan and Wada to provide an accurate depiction of what is behind the vehicle at a particular moment in time.

10. Claims 11, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, Henley and Akinori as applied to claim 1 above and further in view of Schofield et al, (hereinafter Schofield), US 5949331, and Wright.

As per claim (11), Ramakesavan teaches:

a plurality of cameras (col. 1, ll. 60-65); but Ramakesavan does not specifically teach that the cameras are along the roof line, but cameras 12a and 12b are equidistant. It would have been obvious to one of ordinary skill in the art, if they were deciding to implement Ramakesavan's system using only two cameras to place the cameras in locations that they would have a full field of view. Also, Schofield teaches that the image data can be presented in abutting ("adjacent", col. 8, ll. 5-6) images (figure 8, col. 7, l. 66-col. 8, l. 10). Therfore the following limitation is taught by the combination of Ramakesavan and Schofield:

which are equidistantly disposed along at least two edges of said roof and which cooperatively provide images of the environment in which said vehicle resides (Schofield, figure 8) wherein said equidistant spacing of said cameras is effective to cause each provided from two spatially adjacent cameras to abut to cooperatively form a panoramic mosaic view;

Henley teaches:

a display assembly which selectively displays said mosaic view of said cooperatively provided images (col. 4, ll. 51-56); Ramakesavan, Henley nor Schofield teaches a touch sensitive surface.

However, Wright teaches:

a controller having a touch sensitive surface (MobileVu, col. 3, ll. 46-48) upon which an icon (obvious to use icons in a graphical control panel, col. 3, ll. 56-57) is disposed,

Although Wright teaches changing camera images, Wright does not teach selecting another portion of an image to be viewed. However, Henley teaches this feature:

said controller selecting a first portion (col. 4, ll. 51-56) of said cooperatively provided images by use of said touch sensitive surface (which is an obvious functional substitution for a pointing device) and causing said selected first portion of said cooperatively provided images to be displayed by said display assembly.

It would have been obvious to one of ordinary skill in the art to use the touch screen input device of Wright to control the imaging devices of Ramakesavan, Henley and Akinori as used by Schofield to minimize the space requirements of the system given the constraints of having the system located in an automobile, which already suffers from space constraints particularly when the vehicle is used in a law enforcement environment.

As per claim (12), Ramakesavan, Henley, Akinori, Schofield nor Wright specifically teaches that the cameras have an imaging surface substantially coplanar with a portion the roof. However, many cameras have optics that reflects the incoming image at 90 degrees to the imaging surface. This is not a unique configuration for an image acquisition system and would merely be a design choice.

As per claim (13), Henley teaches that the viewpoint can be changed to any arbitrary view point (col. 4, ll. 51-56). Therefore, Ramakesavan teaches:

wherein said cooperatively provided images include a first image which represents a first portion of the environment which is relatively far (rearview, fig. 1, camera 12c) from said vehicle and a second image which represents a second portion of said environment which is relatively close to said vehicle ("Flashing", fig. 12b, col. 2, ll, 25-30), said controller selecting said first image to be displayed upon said display assembly.

when said controller is touched at a point which is relatively far (col. 11, ll. 45-60) from said icon and selecting said second image to be displayed upon said display assembly when said controller is touched at a second point which is relatively close to said icon ("pan- tilt-rotation-zoom controller", col. 4, ll. 51-57, display formats changed based upon selective use of the data/command input device).

Although Henley teaches using a joystick, Henley does not teach a touch screen, however, Wright teaches such a feature.

It would have been obvious to one of ordinary skill in the art to use the touch screen to replace the input device of Henley to zoom in or otherwise manipulate the in-vehicle imaging systems of Ramakesavan, Henley, Akinori, Schofield to provide graphical control panel using data representations familiar to the user, such as icons. It also allows the user to dynamically configuring the display to provide relevant information in a format most easily interpreted by the user.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, Henley, Akinori, Schofield, and Wright, as applied to claim 13 above, further in view of Kiridena.

Although, Wright teaches graphical user interfaces (col. 3, ll. 56-57) in which the use of icons is well known, none of the references applied to claim 13 above specifically state that the icon is an image of a vehicle.

Applicant argues that an image of a vehicle must be one of the vehicles in the collected image, but the claim merely recites that the icon comprises "an image of a vehicle"; this can be a

previously stored image, a cartoon image or possibly a real-time image collected by the on-board.

As per claim (14), Kiridena teaches:

wherein said icon comprises an image of a vehicle (col. 11, ll. 29-33) .

It would have been obvious to one of ordinary skill in the art to use the icon representation as taught by Kiridena to provide the user graphical interface as taught by Wright in the system of Ramakesavan, Henley, and Schofield to provide an obvious representation of a point of interest so that the vehicle operator does not have to divert undue attention to inputting the correct information to get the desired image displayed.

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, Henley, Akinori, Schofield, Wright and Kiridena, as applied to claim 14 above, further in view of Wada.

As per claim (16), Wada teaches:

comprising an audio generator which selectively generates certain sounds which are based upon said certain portion of said cooperatively provided images (col. 7, ll. 20-28).

It would have been obvious to one of ordinary skill in the art to use the audio signal as an alarm as does Wada in the vehicle camera system of Ramakesavan, Henley, Akinori, Schofield, Wright, and Kiridena to prevent collisions with some object located to the rear or side of the vehicle. In addition, the audio signal can allow the user to hear that the operator has touched the correct icon.

13. Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, Henley and Akinori as applied to claim 1 above and further in view of Okude et al., (hereinafter Okude), US 6157342.

As per claim (17), Ramakesavan teaches:

providing a plurality of cameras (fig. 1, elements 12a-c);

disposing said plurality of cameras upon said vehicle, effective to acquire said images (see fig. 1 for locations of cameras);

providing a display (fig. 5, element 11);

Although Ramakesavan does teach a display coupled to the video processor within the vehicle, which clearly will display a portion of the mosaic, Ramakesavan does not specifically teach "selectively' displaying a portion. Henley creates panoramic images (Abstract, col. 2, ll. 40-41, 43-44, 55-67). Akinori teaches:

disposing said display within said vehicle, effective to selectively display a seamless mosaic view from at least a portion of said images (Solution portion of Abstract); Henley teaches using a joystick to select images for display and control (col. 4, ll. 52-53). Neither Ramakesavan nor Henley nor Akinori teaches voice recognition. However, Okude teaches an automobile image display for driver navigation purposes. Okude teaches:

generating a voice command (col. 4, ll. 53-55);

and using said voice command to select said at least a portion of said images (col. 4, ll. 55-56).

It would have been obvious to one of ordinary skill in the art to simplify the image display functions of Ramakesavan, Henley and Akinori by using the voice recognition control

input features of the Okude automobile navigation display to allow for the driver to concentrate on monitoring his surrounding instead of being possibly distracted by having to interact with the system via a joy stick. One of ordinary skill would have been motivated to look at both patents because both pertain to providing mosaic image information to a driver.

As per claim (19), Ramakesavan teaches:

wherein each of said cameras are substantially identical (see figure 5, elements 12a-c, col. 2, ll. 33-35).

14. Claims 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramakesavan, Henley, Akinori and Okude as applied to claim 17 above, and further in view of Kiridena and Hassinger, US 3915385.

Ramakesavan, Henley, Akinori, Okude and Kiridena do not specifically teach a way to keep the camera lenses clean. However, it would have been obvious to design such a system because the environment in which the automobile optical system is subjected to (snow and grime in the winter, if in the Northeast, rain, if in the Northwest or dust if in the Southwest) is harsh and to provide undistorted image data the camera lenses must be free of dirt, etc.

Hassinger teaches:

providing a source of air (figure 4, element 18);

disposing said source of air within said vehicle (fig. 1, element 18);

Hassinger then uses a switch (col. 2, ll. 47-48) instead of a voice command causing air to be applied to at least on of said plurality of cameras by use of said generated second voice command (col. 2, l. 65-col. 3, l. 4).

Ramakesavan, Henley, Akinori, Okude and Hassinger do not teach voice commands. However, Kiridena teaches using a voice command to control the system (col. 6, ll. 27-29).

It would have been obvious to one of ordinary skill in the art to use the lens cleaning system of Hassinger with the camera system of Ramakesavan, Henley, Akinori, Okude and Kiridena because Hassinger is familiar with keeping lenses on automobiles clean. Additionally such systems are already part of an automobile system, it would have been obvious to one of ordinary skill in the art to use already designed off-the-shelf lens cleaning systems to provide unobstructed image acquisition. Furthermore, the use of a voice command system would allow the vehicle operator to maintain his/her attention on the task of driving instead of looking for a switch or icon.

As per claim (20), Hassinger teaches:

providing a cleansing agent (col. 6, ll. 23-32);

heating said cleansing agent; mixing said air with said heated cleansing agent; (see figure 1, element 18, which shows cleansing agent liquid located in the engine compartment of an automobile). Hassinger by locating the cleansing agent liquid in the engine compartment insures that the liquid will be warmed by the heat energy created by the engine. It would have been obvious to one of ordinary skill in the art to use the engine heat to elevate the temperature of the cleansing agent, at least, to prevent freezing of the cleansing solution in the line.

applying said mixture of said air and said heated cleaning agent to said at least one of said plurality of cameras (fig. 4, element 18, col. 2, ll. 54-60, air and fluid are mixed in tank 18).

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Miller whose telephone number is (703) 306-9134. The examiner can normally be reached on Monday-Friday, 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

mem
9-22-2003

AMELIA M. AU
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